The present work starts with study of past and current methods from the field of analysis and visualization of social networks. Selected methods are then described in detail. Following part is devoted to research of current software. Selected applications are tested and evaluated according to their capability of showing a development in dynamic social networks -- networks with temporal data. Based on these researches an application is designed and implemented. This application can be used for analysis and visualization of a development of dynamic networks in time. Finally, the application is tested on co-authorship social network by means of the bibliographic database of scientific papers DBLP. The work also presents the results of the experiments with implemented algorithms.